

REMARKS

Applicants respectfully traverse and request reconsideration.

Claim 1 has been amended to correct a typographical error.

As a preliminary matter, Applicants respectfully note that the office action appears to include several typographical errors that are somewhat confusing with respect to the primary rejection of the claims. For example, the office action on page 2 states that the claims are rejected “over Koss et al. (5,720,019) in view of Fowler et al. (6,052,129).” However, the Examiner’s reasoning relies on a different reference, namely the Morse et al. reference (see for example, pages 2, 3 and 4 of the rejection). In order to expedite prosecution, Applicants’ attorney will assume that the Examiner had a typographical error in paragraph 4 and meant to refer to the Morse reference (U.S. Patent No. 6,359,630) as the primary reference with respect to the rejection of claims 1-3, 6-10, 21-23 and 26-30. As such, the following remarks will be directed to the combination of Morse and Fowler. However, if Applicants’ attorney’s assumption is incorrect, Applicants respectfully request a submission of a new non-final office action to suitably correct the error in the office action.

The office action alleges that Morse et al. discloses Applicants’ claimed combination of a use of a “discard clip guard band” that lies within a “trivial accept guard band”. However, Applicants claim a non-obvious discard clip guard band (Fig. 2, element 30) that is used in addition to a conventional trivial accept guard band. The discard clip guard band is defined as lying within the trivial accept guard band. Such a combination of clip guard bands for clipping is not disclosed in the Morse reference as alleged in the office action.

As shown in Applicants' Fig. 2, three rectangles are shown. The non-dashed line shows, for example, the display area which is equivalent to Morse's regular clipping boundary 312 since as noted in Morse, the clipping boundary can be the entire screen or any suitable window as known in the art. The guard band clipping boundary 314 of Morse appears to be similar to the trivial accept guard band 20 noted in Applicants' Fig. 2. Notably, however, Morse does not describe the trivial discard guard band 30 shown in Fig. 2 and set forth in Applicants' claims. Accordingly, the claims are in condition for allowance.

The office action cites column 10, line 45 through column 12, line 54 and Figs. 4-6. However, Applicants respectfully submit that this cited portion merely describes a conventional prior art clipping operation and a conventional single guard band as described, for example, in the other cited references. For example, as shown in Fig. 4 there is a single "guard band clipping boundary" which corresponds to the trivial accept guard band described in Applicants' specification. However, Applicants claim in addition that within the trivial accept guard band lies a trivial discard guard band. Such a combination of guard bands is not taught or suggested by the Morse reference. For example, in column 11, Morse admits that they use a conventional approach in that the concept of guard band clipping was known and developed to speed up clipping operations. Morse uses a conventional single guard band approach and does not teach or suggest the claimed discard clip guard bands which are defined as lying within a trivial accept guard band. Accordingly, the claims are in condition for allowance.

Applicants' invention offers advantages over Morse and the other references by among other things, as stated in Applicants' specification "by including a trivial discard

band in the determination as to whether to trivially discard specific primitives, primitives that have no area in a pure mathematical sense, but do produce a rasterization area that may include a number of displayed pixels, are not discarded.” The inclusion of both the trivial accept and trivial discard guard bands is not taught or suggested by the Morse reference or the Fowler reference or any other references of record. Accordingly, the claims are believed to be in condition for allowance. The claimed trivial discard guard band allows, for example, the discarding of primitives that would otherwise be processed using only a trivial acceptance guard band as taught by Morse. Accordingly, the independent claims are in condition for allowance.

With respect to claim 2, Applicants respectfully restate the relevant remarks made above with respect to claim 1 while also noting that claim 2 is believed to add additional novel and non-obvious subject matter.

With respect to claim 3, the Applicants respectfully restate the relevant remarks made above with respect to claim 1. Applicants also note that Fowler does not teach a trivial discard guard band and therefore does not teach its constituent members, the horizontal or vertical discard clip guard bands. The office action cites Fowler, column 6, lines 7-20 as disclosing discard clip guard bands based on a dimension of a rasterized area of the primitive (triangle). However, this reference merely discusses the use of Fowler’s guard bands, such as prior art guard bands, which are different from Applicants’ claimed trivial discard guard band, as a way to reduce the number of clipping operations and to increase the number of trivial accepts and rejects. Fowler does not teach or make obvious Applicants’ claimed invention. Accordingly, Applicants respectfully submit that claim 3 is also in condition for allowance.

With respect to claim 6, the Applicants respectfully restate the relevant remarks made above with respect to claims 1 and 3 and also respectfully submit that the office action incorrectly cites column 8, lines 20-23 of Fowler as disclosing horizontal and vertical discard clip guard bands corresponding to an amount of dimensional expansion used for processing primitives. As noted above, Fowler does not describe the use of discard clip guard bands within a trivial accept guard band. Accordingly, this claim is also believed to be in condition for allowance.

As to claim 7, the Applicants respectfully restate the relevant remarks made above with respect to claims 1 and 6 and also note that the office action appears to cite Fowler, column 6, line 28 as teaching the additional patentable subject matter that is claimed. However, this reference merely states that anti-aliasing can be performed by a rasterizer when the rasterizer has certain state information that effects how triangles are rendered. This is not analogous to the Applicants' claimed invention in which the horizontal and vertical discard clip guard bands are sized to correspond to dimensional expansion relating to anti-aliasing operations. Accordingly, Applicants respectfully submit that claim 7 is in condition for allowance.

Applicants respectfully restate the relevant remarks made above noting that Fowler does not teach or describe the multiple guard bands as claimed. Accordingly, this claim is also in condition for allowance.

Claims 9, 10 and 21 are also believed to be allowable for the reasons set forth above.

As to claims 22, 23 and 26-28, Applicants respectfully reassert the relevant remarks made above with respect to claims 2, 6, 7 and 8.

As to claims 29 and 30, Applicants respectfully reassert the relevant remarks made above with respect to claims 9 and 10.

Claims 4, 5, 24 and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,720,019 ("Koss") in view of U.S. Patent No. 6,052,129 ("Fowler") and further in view of U.S. Patent No. 5,012,433 ("Callahan").

With respect to Claim 4, the Office Action cites Callahan as disclosing the language of Claim 4 in which the Applicants' method of Claim 1 relies upon horizontal and vertical discard clip guard bands based on one-half of a smaller dimension of the rasterized area of a line primitive. The Applicants respectfully restate the relevant remarks made in response to Claims 1 and 3, and furthermore note that Column 7, Lines 8-25 of Callahan do not disclose the Applicants' claimed invention. Rather, this reference is specifically directed to the process of the first clipping stage in which the system removes all graphic primitives which lie outside of an arbitrary clipping volume or window (often larger than the desired clipping volume). Callahan is silent as to trivial discard guard bands and their constituent members, the horizontal and vertical discard clip guard bands. Furthermore, Callahan is silent as to basing the horizontal and vertical discard clip guard bands upon one half of a smaller dimension of the rasterized area of the line. As a result, Callahan does not make obvious the Applicants' claimed invention, and the Applicants respectfully believe that Claim 4 is allowable as it contains further non-obvious patentable material.

In regard to Claim 5, the Applicants claim the method of Claim 1 and 3 in which the horizontal and vertical discard clip bands are based on a radial dimension of the rasterized area of a point primitive. This is not analogous to Koss in view of Callahan.

Koss does disclose clipping preprocessing for various polygon primitives (triangle, line, and point), but is silent as to any type of discard clip bands. Furthermore, while Callahan teaches a method of clipping inclusive of the rasterized area of a point primitive, Callahan is also silent on discard clip bands. The Applicants restate the relevant remarks in response to Claims 1, 3, and 4, and believe Claim 5 is allowable as it contains further non-obvious patentable material.

Claims 24 and 25 are in reference to the primitive processor able to execute instructions stored in memory corresponding to the functions described in Claims 4 and 5. As Claims 4 and 5 are allowable, Claims 24 and 25 are also believed to be allowable.

Claims 11-15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Koss in view of Murphy. However, as noted above with respect to Morse, the Koss reference also fails to disclose the use of multiple guard bands namely a discard clip guard band which is defined as lying within a trivial accept guard band as claimed. The office action does not appear to indicate within Koss where Koss describes both a trivial guard guard band in a discard clip guard band that lies within the trivial accept guard band. Koss appears to again use a conventional guard band approach. Accordingly, these claims are also in condition for allowance. If the rejection is maintained, Applicants respectfully request a showing by line number of the multiple guard bands as described in the claims.

Claim 16 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Koss in view of Murphy and further in view of Morse et al. Applicants note that the Examiner admits with respect to this claim that “Koss does not teach an accept clip guard band” as such Applicants’ previous remarks with respect to Koss are again reinforced and

for this admission, Applicants respectfully submit that claims 11-15 are also in condition for allowance. In any event, Applicants respectfully reassert the relevant remarks above with respect to Koss and Morse since each appear to teach at best, a single clip guard band approach. Accordingly, Applicants respectfully submit that this claim is also in condition for allowance.

Claims 17-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Koss in view of Murphy and further in view of Fowler. Applicants respectfully reassert the relevant remarks made above with respect to these references. As such, these claims are also in condition for allowance. Applicants also respectfully note that the Examiner with respect to this claim admits that “Koss does not teach discard clip guard band”. Applicants note that with respect to claim 16, the Examiner noted that Koss also did not teach “an accept clip guard band”. Since the office action admits that Koss does not teach either guard bands, then the application of Koss to any of the claims is improper. Accordingly, Applicants respectfully submit that the claims are in condition for allowance.

As to claims 18 and 19, Applicants respectfully reassert the relevant remarks made above with respect to claims 4 and 5. With respect to claim 20, Applicants respectfully reassert the relevant remarks made above with respect to claim 8.

Applicants respectfully submit that the claims are now in condition for allowance and an early Notice of Allowance is earnestly solicited. The Examiner is invited to telephone the below-listed attorney if the Examiner believes that a telephone conference will expedite the prosecution of the application.

Respectfully submitted,

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